past nine months, in conjunction with Mr. Edgar Perman, been determining the adiabatic relations for liquid and gaseous ether: the rise of pressure and temperature when volume is decreased without escape of heat. It is obvious that similar relations are determinable for solutions, and probably with much greater facility. M. Alexéeff has made some measurements which might be utilized for this purpose; but they are far too few in number, and, moreover, the necessary data as regards osmotic pressure are wholly wanting. It would be possible, by a series of differential experiments, to ascertain the evolution of heat on increasing concentration, and so to arrive at a knowledge of the specific heats of the solution at constant osmotic pressure, corresponding to the idea of specific heats at constant pressure; and also of specific heats at constant concentration, corresponding to specific heats at constant volume. I do not know whether such researches would yield as accurate results as those we are at present carrying out, but they are at least well worthy of attention.

THE SCIENCE COLLECTIONS.

We give below the latest Parliamentary proceedings relating to this question:—

April 16.—Mr. Mundella asked the First Lord of the Treasury whether, in proposing to give the large plot of ground opposite the Normal School of Science at South Kensington for a Gallery of British Art, the Government had fully considered the difficulties of placing an art gallery under an independent management between portions of the Science School and the science collections of the Science and Art Department; and whether the Government would appoint a small committee to report on the matter.

Mr. W. H. Smith—In assigning as a site or a Gallery of British Art the plot of ground opposite the Royal College of Science, the Government have not overlooked the requirements, immediate or prospective, of the Science and Art Department, either in respect of its science collections or in respect of the additional accommodation required for the College of Science. For the science collections there will be available, part at once and part within a year or two, a continuous range of galleries, consisting of the present southern, western, and eastern galleries, and the cross gallery which is about to be constructed between the western and eastern galleries, thus affording more than the amount of accommodation which the committee of 1889 considered to be necessary. Over and above this accommodation, Government has at disposal more than three acres of vacant land facing the Imperial Institute, and considerable areas besides to the south of the present southern galleries. A portion of these vacant lands can be utilized for the extension of the College of Science and for future growth of the science collections. Additions to the College of Science must in any case take the form of a separate building, divided from the present building by Exhibition Road; and as access to the lands mentioned above from Exhibition Road will be secured by means of a corridor, the interposition of the Gallery of British Art need have no more serious effect than to increase by some 60 yards (which will be under cover) the distance between the two portions of the Science College. As the Art Gallery will be a distinct and separate building, the fact that it will be under different management need cause no greater difficulty than does the fact that the Natural History Museum is under a different management from that of the adjoining science galleries.

April 20.—Sir H. Roscoe asked the First Lord of the Treasury whether he would have sketch plans prepared and placed in the Library, showing the relative positions of the existing science schools and science museums, the proposed buildings for the same purposes, and the proposed gallery of modern art, on the land at South Kensington.

The Chancellor of the Exchequer—As no definite scheme has yet been framed, it would be impossible to show exactly the appropriation of land now vacant, but I can promise the hon. member a ground plan, showing what land is available for further science buildings.

Sir H. Roscoe asked the right hon. gentleman whether he would give an assurance that the final step would not be taken in the appropriation of the land until after hon. members had had some opportunity of inspecting the plan.

The Chancellor of the Exchequer—The position of the matter is this. The House knows of the very generous offer that has been made of £80,000 to erect a building. A great deal of necessary and unavoidable delay has taken place, and I think it would be unwise to risk the failure of that generous gift by any further delay. Therefore, I am unwilling to pledge myself to any further delay, but I can assure my hon. friend that every security will be given to gentlemen interested in science that their wishes shall be met as far as possible.

There are a few more questions which might be asked, such as the following:—

1. Did the generous donor of the £80,000 know when the site was chosen that its employment for an art gallery interfered with its contemplated and natural use in relation to the buildings adjacent to it?
2. Are there no other sites, including one in Kensington Gardens, which would equally satisfy the donor, and not be liable to the objections so widely raised against the proposed one?
3. Has Mr. Goschen from first to last made any inquiry whatever as to whether there were any objections to the proposed employment of the site?
4. Has the Science and Art Department been asked its opinion, or have the professors of the College been consulted?

It would seem, indeed, that here we have another instance of the way in which Government arrangements in relation to science are made without knowledge.

NOTES.

The Council of the British Association for the Advancement of Science has resolved to nominate as President of the Association for next year Mr. Archibald Geikie, F.R.S., Director-General of the Geological Survey. The meeting will be held in Edinburgh.

On Tuesday next (April 28) Dr. E. E. Klein, F.R.S., will begin at the Royal Institution a course of three lectures on Bacteria: their nature and functions (the Tyndall Lectures); and Mr. H. Graham Harris will on Saturday (May 9) begin a course of three lectures on the artificial production of cold.

The Royal Naval Exhibition will be opened by the Prince of Wales, on behalf of the Queen, on Saturday, May 2.

The following cutting from the *Sydney Morning Herald* —date not stated—has been sent to us for publication:—"The barque *Killarney* had both a stormy and an extraordinary passage, in one portion of which she stood a good chance of being placed on the list of missing vessels. At 9 p.m. on October 15, 1890, when the barque was 50 miles east of Kent's Group, there was a sudden shift of wind during a heavy thunderstorm. In the midst of a heavy clap a bulky mass was heard to fall into the sea about 200 yards from the vessel. The roar of it coming through the air was quite distinct from that of the thunder, and spray was thrown fully 40 feet high on its reaching the water. The falling mass is believed to have been a meteor."

The Wolsingham Observatory Circular No. 31 states that a new variable star was found on March 2 at 4h. 26m. 4s. +65° 53′

('55). The observation has been confirmed at Harvard Observatory.

In his report on educational work for the year ending February 23, 1891, the Principal of the Mason Science College records that in every department of the College (with the exception of one department which has laboured under special disadvantages through the death of an honoured professor) there is an increase in the number of students, a growing earnestness of purpose, and a creditable record of work accomplished. The analysis of attendances of students shows that the number of students attending in one department only is steadily decreasing, while the numbers attending in two or more departments, and preparing for University examinations, are increasing with equal persistence.

Science of April 3 gives a full account of the somewhat elaborate preparations which have been made for the work of the fourth session at the Marine Biological Laboratory of Wood's Holl, Massachusetts. The laboratory for investigators will be open from June 1 to August 29. It will be fully equipped with aquaria, glass ware, reagents, &c., but microscopes and microtomes will not be provided. In this department there are fourteen private laboratories supplied with aquaria, running water, &c., for the exclusive use of investigators, who are invited to carry on their researches here free of charge. Those who are prepared to begin original work, but require supervision, special suggestions, criticism, or extended instruction in technique, may occupy tables in the general laboratory for investigators, paying for the privilege a fee of fifty dollars. The number of such tables is limited to ten.

M. Roty, Member of the Institute, has designed for the French Association for the Advancement of Science a new medal, a representation of which is given in *La Nature*. On the obverse are two figures, representing France and Science. France, dejected by the misfortunes of 1870–71, is being encouraged by Science, which points to the symbols of sunrise and recovered prosperity. On the reverse is a fine female figure, seated and reading, described by *La Nature* as "science, poetry, idealized thought."

In a speech delivered the other day at Kimberley, Mr. Cecil Rhodes announced that he had received "enormous subscriptions" for the establishment of a teaching University in Cape Colony.

The St. Petersburg correspondent of the *Times* says the Russians seem determined, if possible, to retrieve the failure of Captain Grombtchefsky in trying to get through Afghan Kafiristan. A telegram from Samarkand states that another captain, by name Bortchefsky, is about to start from Southern Bokhara at the head of a scientific expedition to the Pamir, and will endeavour to penetrate Kafiristan and reach the frontier of China.

The *Kew Bulletin* for April opens with a note on Persian tobacco or tombak, establishing the botanical identity of the tobacco plant cultivated in Persia. Dr. J. Hornsey Casson lately sent to the Kew Gardens, from the Shiraz district, some specimens of fruit, flower, and seed. The material thus obtained "required a good deal of soaking and manipulation before it could be brought into a form in which it could be compared botanically. This, however, having been done, the conclusion was incontestable that the plant of the Shiraz *tunbaku* was nothing more, as had indeed been expected, than ordinary *Nicotiana Tabacum*." The same number contains some letters by the late George Woodruff and Harold Edmund Bartlett, who were sent from Kew in 1889 to take charge of the botanical stations established by the Royal Niger Company in the interior of the Niger Protectorate. The letters were written to former fellow-gardeners at Kew, and, as the *Bulletin* says, are "interesting as showing the type of men that the Royal Gardens turn out; the plucky way in which they face their difficulties, their loyalty to their employers, and the kindly feeling they entertain towards Kew." The gardeners at Kew are specially trained to fit them for such appointments as those accepted by Mr. Woodruff and Mr. Bartlett. "The Royal Gardens have, in fact, always been an advanced technical school. Each gardener is admitted for a two years' course, during which he has the opportunity of seeing every kind of cultivation carried on in the establishment, and, in addition, obtains systematic instruction in scientific subjects connected with his profession. The best men receive appointments as opportunity offers, and they are now to be found in every part of the world." In the April number there are also sections devoted to Aden Barilla, and to "Assam rubber for West Africa."

Writing to the New York *Nation* from Keneh, Upper Egypt, on March 17, Mr. W. H. Goodyear describes an important and most interesting discovery made by Mr. Petrie at Maydoom. Mr. Petrie has there unearthed "the oldest known Egyptian temple and the only Pyramid temple ever found." Apart from the "Temple of the Sphinx" at Ghizeh, this building is also "the only temple of the Old Empire so far known." It was buried under about forty feet of rubbish. It lies directly at the centre of the eastern base of the Pyramid, on the side facing which it has two round-topped obelisks. "Obelisks and temple chambers so far entered," says Mr. Goodyear, "have the plain undecorated style of the Old Empire, as shown by the Temple of the Sphinx, but hieratic inscriptions in black paint found within fix the name of Seneferoo as builder, and confirm the supposition to this effect hitherto based on the fact that tombs near the Pyramid contain his cartouche. Seneferoo is the king connecting the third and four dynasties, and variously placed in either. According to computations of Mariette and Brugsch, the antiquity will be about 4000 B.C., or earlier." On Tuesday, March 10, Mr. Petrie's workmen reached a platform which appeared to be a causeway terminating with two obelisks at the base of the Pyramid. "In the forenoon of Wednesday," continues Mr. Goodyear, "a workman came to say that an opening had been found under the platform on the side next the Pyramid. This proved to be the top of a doorway choked by detritus, through which Mr. Petrie crawled into an interior of three chambers and discovered the inscriptions mentioned. I had the pleasure of following him. Mr. Petrie thought the apartments had not been previously entered for about three thousand years—that is to say, that the rubbish fallen from the Pyramid had choked the entrance about three thousand years after construction. A friend who was with me noticed on the floor some dried wisps of papyrus, a plant now extinct in Egypt. The chambers thus far found are so filled that one cannot stand erect in them, and a door at the end of the third chamber is blocked by large stones. Over all lies an enormous mass of detritus, whose removal by Arab diggers is now in progress. I had the pleasure next day of carrying the news of Mr. Petrie's find to the gentlemen of the Egypt Exploration Fund at Beni-Hassan, and of witnessing their unaffected delight over it."

Prince Albert of Monaco has begun the publication of the results of his scientific voyages in his yacht; they are intended to comprise navigation, hydrography, oceanographic physics, and zoology. The zoological portion will be published under the editorship of M. J. Guerne, assisted by numerous specialists. The first part (published by Masson, Paris), on the marine Mollusca of the Azores, by M. Dautzenberg, with four large plates, two of them coloured, has already been issued.

The "Year-book of Australia for 1891" contains an article upon scientific progress in Australia during 1890. It is compiled from information supplied by the various Australian scientific associations. The compiler cannot be charged with having formed an extravagant estimate of the value of the work done. It may not, he says, have been "so fruitful in important results as have similar labours in older countries; nevertheless, it has not been without interest or utility."

So far as is at present known, the first person who kept a record of the weather was Walter Merle. He did so for the years 1337 to 1344, and his manuscript on the original vellum still exists. Thanks to the courtesy of the officials of the Bodleian Library, Mr. G. J. Symons has had this manuscript photographed, and reproductions of the ten large photographs, with a full translation (the original is in contracted Latin), some particulars as to Merle, and a list of the subscribers, are to be given in a handsomely printed volume. Mr. Symons wishes to call attention to the fact that no one will be able to obtain a copy who does not apply for one before May 1. Except ten copies reserved for subscribers too distant to apply before tha date, not a single copy in excess of those subscribed for will be printed.

IN our issue of the 9th instant, p. 548, we published a formula for wind velocities as observed with Robinson's cup anemometer, which is likely to be practically used by engineers as well as meteorologists. The formula, as quoted by the *American Meteorological Journal* for February, contains an erroneous interpolation of v. The correct formula is

$$\log V = 0{\cdot}509 + 0{\cdot}9012 \log v\,;$$

where V is the wind's velocity, v the velocity of the cups in miles per hour. It should be noted that the constants of the formula apply only to anemometers of the pattern specified, the cups of which are 4 inches in diameter, and the arms, each 6·72 inches, measured from the axis to the centres of the cups. Prof. Marvin says nothing as to the weight of this gear set in motion by the wind, which ought also to be a constant quantity.

THE American Hydrographic Office reports, in the Pilot Chart of the North Atlantic Ocean for April, that the weather was very abnormal over the Atlantic during March, the usual conditions of wind and pressure having been entirely reversed for a large part of the month. Unusually low barometric pressure and cyclonic wind circulation have prevailed very generally to the southward of the Azores, and between the Azores and Bermuda, whilst anticyclones have been very frequent and persistent along the 50th parallel. The result has therefore been that the north-east trades have actually been reversed for some time, and the westerly winds that usually prevail along the steamer routes have been often replaced by persistent easterly winds. Fog has been reported in great quantities on the Grand Banks and the coast to the westward as far south as Hatteras.

IN the Proceedings of the Royal Prussian Meteorological Institute, vol. i. No. 2 (Berlin, 1890), Dr. Sprung gives an account of an elaborate series of experiments to show the effect of difference of exposure upon the readings of thermometers. The experiments were made at Gross-Lichterfelde, near Berlin, by assistants of the Prussian Meteorological Office, observations being taken six times daily with various screens, and with the "sling" thermometer, from June 1886 to March 1887 inclusive, under very favourable conditions. The readings at each of the hours of observation are tabulated for two representative months, together with the state of the sky and of the wind. The principal results likely to be of interest to English observers are: (1) that exposure outside windows, both with and without screens, if properly protected from radiation, gives readings which agree well together; (2) the readings of the various screens usually employed, which are necessarily exposed to the sun, give results which do not agree so well together; (3) on sunny summer days, the mean temperature in the ordinary screens is about 0°·7 higher than that obtained from the window exposure; (4) the range shown by the registering thermometers is considerably greater in the screens than that got from the window exposure; (5) the English (Stevenson) screen generally gives better results than the others, but the humidity observations in the evening are too high, as compared with those obtained by the window exposure and the French screen.

MR. J. W. FEWKES calls attention in the *American Naturalist* to a peculiar gesture often used by the Zuñi and Navajo Indians. In indicating that a person or thing is far away, or where an event has happened or a person is at the time of speaking, these Indians, instead of turning the head that way or pointing with the finger, raise the head and project the lower jaw in the direction which they wish to indicate. Mr. Fewkes noticed that the same gesture was used several times for exactly the same purpose by a New England Indian with whom he was talking; and he now wishes to find out whether this method of suggesting distance or direction is characteristic of the American aborigines generally. "Those whom I have consulted," he says, "tell me that it is. If it is, we may well wonder why such an insignificant habit should be so tenacious in a tribe so long in contact with the whites, and so much affected by their civilization in much more important particulars, as the Passamaquoddies. It is conceivable that gestures like this, certainly spontaneous and in some respects involuntary, may furnish data of ethnological value."

A NEW illustrated volume intended for amateur astronomers, and written by Mr. Denning, of Bristol, will shortly be published by Messrs. Taylor and Francis, under the title of "Telescopic Work for Starlight Evenings." The book will include chapters on telescopes and observational matters, in addition to descriptions of the principal celestial objects.

A VERY useful little book, published by Messrs. Longmans, Green, and Co., and compiled and edited by the Rev. Isaac Warren, M.A., consists of a series of examination-papers in Euclid and trigonometry that have been proposed to students of the University of Dublin. There are also papers in plane trigonometry that have been set in the examinations for the National School teachers by the Board of National Education. In each case the answers are appended, and, in the latter, hints are inserted for their solution. To students of the University who are preparing for these examinations, it is needless to say that they will find the work most useful; while for others, the papers will afford a capital chance for testing their knowledge on the subjects in question.

A PAPER upon the chlorobromides of silicon is contributed by M. Besson to the current number of the *Comptes rendus*. There are three theoretically possible compounds of this nature derived from silicon tetrachloride, $SiCl_4$. They are $SiCl_3Br$, $SiCl_2Br_2$, and $SiClBr_3$ respectively. The two first of these were prepared some time ago by M. Friedel, by the action of bromine upon silicon chloroform, $SiHCl_3$, at 100° in sealed tubes. The first compound results from the substitution of bromine for hydrogen according to the equation $SiHCl_3 + 2Br = SiCl_3Br + HBr$. The second compound is then formed by the action of this hydrobromic acid upon the first compound, $SiCl_3Br + HBr = SiCl_2Br_2 + HCl$. M. Besson now describes how all three compounds, including the hitherto unisolated $SiClBr_3$, may be obtained by the action of hydrobromic acid gas upon silicon tetrachloride. Dry hydrobromic acid is without action at the ordinary temperature, but partial substitution of bromine for chlorine occurs at high temperatures, owing to the difference in the relative heats of formation of hydrochloric and hydrobromic acids, and the partial dissociation of the latter. The dry gas is passed, saturated with vapour of silicon tetrachloride, through a porcelain tube heated to redness. The product obtained in the receiver contains considerable quantities of unaltered tetrachloride, but, by repeating the process a few times, a product is obtained consisting largely of the first chlorobromide, $SiCl_3Br$. It is comparatively easy to separate, by fractional distillation, this compound, which boils at 80°, from the remaining tetrachloride, and the $SiCl_3Br$ thus obtained in a fairly pure state serves for the preparation of the second and third chlorobromides by passing its vapour, instead of the tetrachloride, together with hydrobromic acid through the hot porcelain tube. The second chlorobromide, $SiCl_2Br_2$, has been said to boil about 100°. M. Besson finds that his carefully purified specimen boils at 103°–105°. It was found impossible to separate the third compound, $SiClBr_3$, from this second one by fractional distillation but by taking advantage of the fact that the second chlorobromide cannot be solidified at $-60°$, while the third compound solidifies at $-39°$, and afterwards distilling the solid obtained, the third compound, $SiClBr_3$, has been isolated as a liquid boiling at 126°–128°. This substance exhibits the property of superfusion in a very high degree; it may be cooled as low as $-50°$ without solidification ensuing, provided the liquid be maintained perfectly still. On agitation to even the slightest extent, however, it suddenly solidifies, the thermometer rising instantly to $-39°$. All three chlorobromides combine directly with gaseous ammonia to form additive compounds, white amorphous solid bodies decomposed by water. In case of the first chlorobromide, $SiCl_3Br$, a similar compound has been obtained under pressure in a Cailletet tube with phosphoretted hydrogen, PH_3. The combination occurs at 0° under a pressure of 25 atmospheres, or at $-22°$ under 17 atmospheres, all the liquid being then transformed into a white solid, which persists when the pressure is removed, but which is again dissociated upon slightly warming the tube.

THE additions to the Zoological Society's Gardens during the past week include a Lesser Ourang-Outang (*Simia morio* ♂) from Sarawak, Borneo, presented by Commander Ernest Rason, R.N.; two Suricates (*Suricata tetradactyla*) from South Africa, presented by Mr. J. W. Munt; two Azara's Opossums (*Didelphys azaræ* ♂ ♀) from La Plata, presented by Mr. Edward C. Hawe; a Lion (*Felis leo* ♀), bred in Holland; a Nylghaie (*Boselaphus tragocamelus* ♂), bred in France, purchased; a Grey Parrot (*Psittacus erithacus*) from West Africa, deposited.

THE PRESENT METHODS OF TEACHING CHEMISTRY.[1]

IN their second Report, which was presented at the Newcastle-on Tyne meeting, the Committee gave an account in some detail of the general lines which, in their opinion, an elementary course of instruction in physical science might most profitably follow. During the past year the Committee have been principally engaged in collecting and comparing the regulations, with respect to chemistry, which are issued by the more important of the examining bodies in the kingdom, in order to discover how far their requirements are in harmony with such a course of instruction as that suggested by the Committee. Since the information which has been collected is of general interest, the greater part of it is here printed. It consists of a brief outline of the noteworthy features in the regulations of the various Examination Boards, and, wherever it appeared necessary, of recent examination papers. The examinations about which information is now given are as follows:—

Oxford and Cambridge Schools Examination Board.
University of Cambridge Local Examinations.
University of Edinburgh Local Examinations.
University of Glasgow Local Examinations.
University of London Matriculation.
University of Durham Certificate for Proficiency in General Education.
Victoria University Preliminary Examination.
College of Preceptors—Professional Preliminary Examination.
Science and Art Department Examination in Chemistry.
Intermediate Education Board for Ireland.
Civil Service of India.
India Forest Service.
Royal Military Academy, Woolwich.
Cadetships, Royal Military College, Sandhurst.
Engineer Students, H.M. Dockyards.

With respect to the regulations which relate to these examinations, the Committee consider it desirable to direct especial attention to the following points.

It is of great importance that natural science should be sufficently represented on the Board which issues the regulations and is responsible for the proper conduct of the examination. It is remarkable that, although chemistry is an important subject in the Oxford and Cambridge Schools Examination, no representative of this science is appointed by either University to act on the Examination Board, whilst Oxford does not appoint a representative of any one branch of natural science.

The Committee note with satisfaction that in these examinations, most of which are held to test proficiency in general education, chemistry is generally included, in addition to one or more branches of experimental physics, and that in many cases the examination is in part a practical one. An important exception to this statement is found in the case of the University of Durham, which, although it grants a certificate of proficiency in general education, does not include among the subjects of this examination either chemistry or any branch of experimental science. Science is represented only by elementary mechanics, and even this is an optional and not a compulsory subject.

As regards the status occupied by chemistry and experimental physics in public examinations, the position of these subjects is still frequently lower than that of the other principal subjects of examination, and much yet remains to be done to secure the adequate recognition of the educational value of natural science. Attention may here be drawn to the position assigned to physical science by the Intermediate Education Board for Ireland, upon whom devolves the examination of most of the Irish public schools. According to the regulations at present enforced by this Board, natural philosophy and chemistry appear as optional subjects, each having a relative value represented by 500 marks, the value of Greek and Latin being assessed at 1200 marks each. It is to be hoped that the Commissioners may, before long, see their way to introduce elementary physical science as a compulsory subject of these examinations, and to increase the marks assigned to it beyond the present number of 500, which is less than one-half of that awarded to Greek or Latin (1200).

Another very anomalous case is that of one of the Civil Service examinations, viz. the examination for engineer students in H.M. Dockyards. In this examination, "very elementary physics and chemistry" are included as a single subject, to which is allotted 100 marks out of a total number of 1950! In the profession for which this is an entrance examination, applicable to boys who are about to leave a public school, not only is the possession of a scientific habit of mind of the highest moment, but a considerable knowledge of physics and chemistry is indispensable.

The Committee are strongly of opinion that some attempt should be made to remedy a conspicuous deficiency in nearly all existing examinational regulations. It is virtually impossible to ascertain, in the course of a single short examination, especially when the number of candidates is large, whether sufficient time has been devoted to the study of the elements of physical science to make it of permanent advantage to the student; neither is it possible to determine whether the character of the instruction has been in every respect satisfactory. Periodical inspection of the teaching by properly qualified inspectors, such as is now practised to some extent by more than one Government department, would seem to constitute the best method of dealing with this defect, the reports of the inspectors, as well as the students' own record of work testified to by the teacher, being taken into account in awarding prizes, certificates, and grants, in addition to the results of an examination.

With respect to the schedules and examination papers, typical specimens of which are here printed, it will be seen that for the most part they do not aim at an educational training of the kind suggested in the Committee's last report. Although nearly all the examinations included are intended to maintain a high stand-

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[1] Third Report of the B.A. Committee, consisting of Prof. H. E. Armstrong, Prof. W. R. Dunstan (Secretary), Dr. J. H. Gladstone, Mr. A. G. Vernon Harcourt, Prof. H. McLeod, Prof. Meldola, Mr. Pattison Muir, Sir Henry E. Roscoe, Dr. W. J. Russell (Chairman), Mr. W. A. Shenstone, Prof. Smithells, and Mr. Stallard, appointed for the purpose of inquiring into and reporting upon the Present Methods of Teaching Chemistry. (Drawn up by Prof. Dunstan.) To which is appended a Paper, by Prof. Armstrong, on "Exercises in Elementary Experimental Science."